



THE
BEE-KEEPER'S GUIDE.
TO MANAGE BEES
IN THE
VERMONT BEE-HIVE.

BY JOHN M. WEEKS.
West Farms, Salisbury Vt.

MIDDLEBURY Vt.
ARGUS OFFICE.

1840.

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Bibliography
PREFACE

The proprietor of the Vermont Bee Hive has found it necessary to publish a concise guide for those who use this hive, by which they may cultivate their bees without being compelled to read so extensive a work as the author's Manual on bees. Yet, every Apianian, who has a taste for the natural history of these little industrious insects, should own some treatise on the subject of bees, which will direct his attention to the peculiar instincts of their nature, and habits, which might otherwise remain unthought of. Ten thousand of the author's Manuals on bees have gone before the public in several successive editions, since 1836, and another edition revised and enlarged is called for.

The trials already made in the use of the Vermont Bee Hive in various sections of the United States, has abundantly proved its superior advantages: and it is believed that no bee manager will ever regret that he has made a faithful trial of this hive, if he strictly adopts the principle of managing his bees in accordance with my Manual.

THE AUTHOR.

Entered according to act of Congress in the year 1840—By JOHN M. WEEKS, West Farms, Solisbury, Vt. in the clerk's office of the District Court of Vermont.

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CHAPTER I.

ON THE CONSTRUCTION OF A BEE HIVE.

A Bee Hive should be made of sound boards well seasoned, at least one inch thick, with the chamber floor let into the sides and front boards by a groove, and the hive well and thoroughly nailed together so as to prevent the boards from warping, particularly the upper side of the chamber floor where the drawers are placed, to prevent any vacant place betwixt the bottom of the drawer and floor under it for worms or moths to secrete themselves from the notice of the bees. As the vapor of the bees, in cold weather swells the timber in the inside, more than the outside, the bee manager will readily account for the cracks which appear in hives that have been used for bees one or more years. All cracks and open joints should be filled with a composition made of Beeswax and Wheat flour simmered together which resists all insects.

The lower apartment of a bee hive should hold one bushel, and the chamber about one third as much. This size cannot be deviated from to any considerable extent with safety. Nature has its fixed principles which are unalterable by human wisdom. Notwithstanding my letters patent gives the purchaser the privilege of altering the hive in shape or size to suit himself (retaining the principle of the patent,)

Smith Box Co.
F. 12. Oct. 6. 1887.

yet it is found by various and repeated trials, that this size is the most profitable. The drawers are numbered corresponding with the quantity it takes to fill the chamber, to wit, No 1 is 12 and 1-2 inches wide, 14 inches long, and 6 inches high when finished, and fills the chamber very loose so as to render its removal easy when necessary. This drawer should never be used except for transferring bees, and dividing them inasmuch as its size will enable the swarm to locate in it, raise young bees, deposit bread, and thus defeat the whole design of the chamber which is to procure pure honey unadulterated by any organized operation of the bees.

The chamber of the hive is 13 inches wide, 14 inches deep and 6 and 1-4 inches high in the clear.

No. 2 drawers are 6 and 1-4 inches wide, 14 inches long and 6 inches high on the outside when finished, two of which fills the chamber, and are the most profitable wood boxes for ordinary uses, inasmuch as bees will make more honey in these sized drawers than any other.

No. 4 drawers are the same size of No. 2, seven inches long only. No. 8 drawers are the same size as No. 4, half the width only. No. 16 are half the size of No. 8, half their height only, with an aperture through the top as well as the bottom of the lower box, as one is placed directly over the other when in the hive. All drawers of a smaller size than No. 2,

should be made with glass sides and ends and no drawers or boxes of less size than No 4 should be used for any purpose except for curiosity. The bee manager will not often obtain any honey in the top box No. 16 unless he attaches comb to the under side of the cover of the same, which is easily done by filtering on a little melted bees wax, then carefully stick on the bit of empty comb.—It is found by doing this that the labors of the bees are greatly facilitated in any drawer. When bits of comb are thus attached to the top board the bees will make more honey in a season on account of the extreme difficulty of making the wax adhere to the new wood at their commencement inasmuch as this difficulty is partially removed by this process; besides, the Apiarian can give his bees a direction in building their combs by the pieces he attaches to the box. A hive should be planed smooth inside and out and painted, or whitowashed with lime on its outside. The inside should be rubbed with cold bees wax and the under side of the chamber floor should be scratched with a sharp scratch so as to raise little ridges to enable the bees to hold on without falling suddenly upon the bottom board. As one of the most important uses of sticks in a bee hive is to sustain the weight of the bees while they are building down their combs, it is believed that boards 3 inches wide in the centre tapering nearly to a point at each end, is not too wide and should be placed in the best possible manner to

sustain the weight of the bees as also that of the new combs which are always exceeding tender as well as softened by their animal heat almost to melting, to enable the bees to build on, and enlarge the same at pleasure.

That the bottom board should be suspended and brought under the control of the button will be readily seen when treated of in its proper chapter.

CHAPTER 2. ON SWARMING AND HIVING.

There are so great a variety of methods adopted by the managers to catch swarms when they sally forth I shall mention but two or three which will be found in the appendix on the last pages of this work.

Every apiarian should have his hives in readiness, clean, dry, and cool, with their appendages in their places—drawers bottom up, or slides under them, to prevent entrance. When a swarm comes forth and has alighted, the hive should be set on a broad table, or board with a billet of wood placed under the back side, so as to bring the hive nearly level. Now cut off the limb and shake the bees on the table by the side of the hive which may be set over them, or stand as already placed; for the bees will certainly find the hive, inasmuch as the limb is taken from the tree

where they alighted: as soon as half of the bees are in the hive, set it in a light portable frame made for that purpose, and hitch on the bottom board; now set the frame and hive on the table, taking care to brush the remaining bees that are yet left on the table into the air. In this way the bees will be principally in the hive in from six to ten minutes. It should be remarked however that if the Queen is seen she should be taken carefully in the hand and placed on the bottom board, for she is usually heavily laden with eggs if it is a first swarm from a hive in the season, and should be handled very tenderly. Now bring the bottom board under the control of the button, and close the hive except the common entrance, and place it where it is intended to stand through the season. In case many swarms are expected in a day as from large establishments, several low tables are necessary which should be covered with a sheet which may be folded over the hive by drawing up the corners, then the hive of bees may be carried away some distance while another swarm are collecting in a body, and thus, doubling prevented, for as soon as another swarm has alighted, they may be shaken off, the hive set over them and the bees confined by the sheet and carried a few rods in another direction. In case it becomes necessary to invert the hive to take the bees from the body of a tree, or from any other cause, the drawers should be confined in their places to prevent the bees

from falling through the apertures into the chamber, as they will be caught betwixt the boxes and chamber floor. In all such cases I prefer a light square basket (not too deep) without handles, into which the bees may be shook, or brushed as the case may require, when a cloth may be thrown over the whole and carried any desirable distance for the hive.

All swarms of bees weighing over seven pounds should have access to the drawers at the time of hiving; smaller ones should have entrance in seven or eight days after hiving. The sun should never shine on a bee hive inasmuch as the air in the hive is exhausted of a great portion of its vitality in a few minutes in a hot day, and the bees are prevented from their regular work, and is frequently the cause of young swarms leaving the hive for the woods—hence a swarm of bees should be placed in the apiary the moment they can be hived, and the bottom board let down 3-8 of an inch on the 3d or fourth day if the weather is hot. As it has been my invariable practice to secure my hives from the rays of the sun, while hiving the bees from time out of mind, and have never made any noises uncommon to them when swarming, nor perfumed my hives with any thing except rubbing the inside of new hives with cold beeswax so that the bees could stick and not fall suddenly upon the bottom board, and have never lost a single swarm by flight to the woods when I was present at

Swarming. It is true indeed that swarms have been known to leave the old stock and go direct to the woods without alighting ; but one man alone is able to stop them in case they cross a ploughed field or in any place where dirt is easily obtained ; by throwing a few handfuls of dirt angling among the leaders (which are always forward at such times) they are soon swayed out of their true line, and as they have no rolling eye like man, and quadrupeds, they are confused at once, and are compelled to alight, and reorganize before they can proceed on their journey.—It is of no use to throw dirt into the main body of the swarm, for, before bees leave for the woods they send out an embassy to seek out a residence, and these messengers on their return, become leaders and fly forward ; all the rest follow.

Bees frequently swarm out, and return back to the old stock in a few minutes—their return is caused by the inability of the Queen, as in such cases she is usually so heavy laden with eggs that she is unable to fly, or soon tires out.—I have often found her on the outside of the hive, or within a few feet of it, she should always be looked for, and found if possible, for, unless she is able to return to the hive again, the bees will not swarm until another is hatched, which is not often sooner than 8 days after first swarming. Now as the swarming season is the best part of the year for bees to collect honey, the reader will see that no time should be lost in swarming, inasmuch as every

day throws them into poorer and less abundant feed.

In case the Queen is not found and does not return, in large establishments the evil is easily remedied by catching a queen from any small swarm and introducing her at the mouth of the hive. A stock of bees will receive any queen that is offered them when they are destitute, and in this case as well as all others the old queen leaves the hive with the swarm and the hive is left destitute until another can be hatched. I have often supplied hives under such circumstances with a queen which has usually brought out the swarm in the course of a day or two.

CHAPTER 3.

ON VENTILATING THE HIVE.

A judicious ventilation of the hive is one of the most intricate and difficult duties of the apiarian: Inasmuch as bees need more air in very hot and in very cold weather than at any other time: to facilitate this part of bee management, the bottom board is suspended and brought under the control of the button. It is found by experience that in warm weather, when honey is collected in the greatest abundance there is an insufficiency of air pressing through the apertures into the drawers to facilitate the labors of the bees in the boxes unless the bottom board is let down a little to receive the air from be-

low, and yet, in chilly weather unless the bottom board is closed up, there is danger of destroying the chrysalis by a chill; hence the bee manager will see the propriety of closing up the bottom board at every cold turn of weather during the breeding season, which, in Vermont usually lasts from April to late in September.

CHAPTER 4.

ON PREVENTING ROBBERIES.

Bees rob each other when but little or no honey can be obtained and at no other time: to prevent this, the bottom board should be brought under the control of the button and the hive kept closed until honey is easily obtained from blossoms, leaving the mouth of the hive open only. As the entrance of the hive is made by boring 7 holes with a centre bit 3-8 of an inch in diameter, not larger, 2 or 3 inches from its bottom, the reader will see at once that these holes are easily guarded by the bees as the ventilator is to be closed except in very hot, and in cold weather. The bottom board should be let down once or twice a week and cleared to keep any webs from forming betwixt that and the edges of the hive. The bottom board should be white washed with lime every spring as the bees are very fond of it and is very conducive to their health.

When it is found that robbing is commenced and continued with great earnestness their manager should sprinkle the robbers as they come with cold water, the colder the water is the better, as it will soon frighten them into peace. Many bees may fall and seem to be drowned, but they will resuscitate and return home without any plunder.

It is proper here to remark that the apiarian may make a mistake and sprinkle his bees when the queen is taking her excursions in the air which always produces great tumult and confusion about the hive as well as when engaged with hostile foes. As a sure indication of robbery the observer will see little bits of comb which are the capings of cells on the bottom board that are torn off by the robbers to get the honey.

CHAPTER 5. ON EQUALIZING COLONIES.

As every hive and all their appendages should be made exactly alike so as to prevent mistakes and difficulties in managing the bees it is proper that colonies should be equalized, which is done with perfect ease in the following manner, viz :

Hive one swarm in the lower apartment of the hive ; collect another swarm in a drawer, and insert the same in the chamber of the hive containing the first. Then if the swarms are small, col-

lect another small swarm in another drawer, and insert the same in the chamber of the hive containing the first, by the side of the second. In case all the bees from either of the drawers, mingle and go helow with the first swarm and leave the drawer empty, then it may be removed, and another small swarm added in the same manner.

As separate swarms of bees become hostile towards each other as soon as they have emptied their sacks and formed a national character by acquiring rights of property, it may become necessary to fumigate each swarm with a little tobacco smoke in order to render a sameness in their scent which prevents them from distinguishing each other from their own companions: In this way old swarms may be united at any proper season of the year—young swarms may be united at any time within 4 days after swarming without smoke. Second swarms only, should be doubled, 3d and 4th swarms should always have their queens taken from them and the bees will return to the parent stock, as will be treated of in its proper chapter.

CHAPTER 6.

ON REMOVING HONEY.

Insert a slide under the drawer, so far as to cut off all communication between the lower apartment and the drawer. Insert another slide between

the first slide and the drawer. Now draw out the box containing the honey, with the slide that is next to it.--Set the drawer on its window end, a little distance from the upiary, and remove the slide. Now supply the place of the drawer, thus removed, with an empty one, and draw the first inserted slide.

If there is danger of the bees carrying back the honey, or of the box being robbed by other bees; - "take an empty barrel with one head out, and a bung hole through the other head; now set the barrel over the drawer which so darkens the interior of the barrel where the box of honey remains that the bees are unable to return after they have escaped through the bung hole. In this way the bee manager can pursue his common business without being in danger of losing his honey."

CHAPTER 7.

ON TRANSFERRING BEES.

This operation should never be performed so long as the bees are doing middling well. The best method of transferring from the old fashioned hives is as follows. Immediately: forthwith, after hiving a swarm from the old stock to be transferred, set the new hive containing the swarm as near as possible where the old one stood, having removed that a few yards in front. Now take all the comb, honey, and

bees out of the old hive. The bees will all return and enter the new hive. Put on a veil and a pair of woolen gloves to prevent stings; their hostility will soon cease, for they will yield to their master's wishes in 2 or 3 minutes after he commences taking away their comb and the veil and mittens may be dispensed with. But there is another method which I very much like in transferring bees from one Vermont hive to another of the same kind.—it is this:

This operation should never be effected by compulsion.

FIRST METHOD.—Insert drawer No. 1 into the chamber of the hive to be transferred, as early as the first of May. If the bees fill the drawer, they will recede from the lower apartment and winter in the drawer. As early in the spring as the bees carry in bread plentifully on their legs, remove the drawer, which will contain the principal part of the bees, to an empty hive. Now remove the old hive a few feet in front, and place the new one containing the drawer where the old one stood. Now turn the old hive bottom up. If there are any bees left in the old hive, they will soon return and take possession of their new habitation.

SECOND METHOD.—Take drawer No. 1, well filled by any hive the same season—insert the same into the chamber of the hive to be transferred, in September, (August would be better). If

the bees need transferring, they will repair to the drawer and make the same their winter quarters.

Then proceed in the spring as directed in the first method.

CHAPTER 8.

ON MULTIPLYING SWARMS BY DIVIDING THEM.

The large drawer, No. 1, should always be used for this purpose. Insert slides, as in Chap. 6, and remove the drawer containing bees and brood-comb, place the same in the chamber of an empty hive, stop the entrances of both the new and old hives, taking care to give them air, as in Chap. 4. Give clean water daily, three or four days. Now let the bees, in both hives, have their liberty.

The only proper time to divide bees is just before first swarming.

CHAPTER 9.

ON PREVENTING THE MOTHS.

The Bee House and bottom board (if not hives) should be well washed over inside and out every spring with white wash made of lime which is a great preventive of the moths as well as spiders and other insects, at the same time it conduces very much to the health and vigor of the bees. Let down the bottom board once or twice in each week and see that no

filth nor web collects—strow on a little fine salt occasionally, until the hive gets well replenished with bees. Take the queens from all the little swarms and let the bees return to the parent stock to keep it well guarded from millers and robbers and also to keep up the animal heat so necessary to keep them from perishing from cold in the winter. It is not unusual for these small swarms to sally out several times until all their queens are hatched, and as this part of bee management constitutes an important feature of my system of management, it is hoped that every apiarian will persevere in this particular until he realizes its benefits. No swarm of bees in a well constructed and well made hive will ever materially suffer by the moths so long as they are well stocked with bees and they have a living and faithful queen.

CHAPTER 10. ON FEEDING BEES.

Hives of bees weighing less than 30 pounds in addition to the weight of the hive, should be fed in October, as they will at that time, when the weather is warm, store away the honey in such a manner as will be most convenient for them in the winter. The feeder as described in my Manual may be used, or take an inch board 10 inches wide and 14 inches long, hat-

low out the upper side so as to cause the honey to settle to its centre; now lay on comb filled with honey filtered into the cells (West India honey is as good as any) remove the drawers and place it in the chamber of the hive: one piece of comb may be laid over another, thus filled, until the chamber is nearly full — I have known a single swarm to store away 10 pounds in a day and night. The bottom board and ventilator should be closed at this time, and if there are but few bees, one or two of the holes at the hive's mouth should be stoped so as to enable the bees to guard their entrance, and resist their enemies.

A hive of bees should weigh at least 25 pounds more than the weight of the hive on the first of December.

CHAPTER 11. ON WINTERING BEES.

When I have let my bees stand out, I have succeeded best in wintering them by suspending the bottom board at least an inch from the hive and kept the ventilator open. I have kept about sixty swarms in a dry cellar made in the side of a hill several seasons without losing a single swarm and yet I have found some mouldy combs in some few of the hives in the spring which has induced me to construct an apiary at considerable expense which will answer for summer and winter and save the trouble of much hard

labor in moving my bees as also to prevent any mould from collecting on the combs. My apiary is constructed for 82 hives 18 feet square, 3 stories high, or rather 3 tiers high, 3 feet 2 inches betwixt joints, with a projection two feet wide on the outside to keep the rays of the sun from the hives and also to keep the bees from mingling: shelves on the inside 18 inches wide, on which, rests are erected to suspend the hives: shutters or doors on the outside, which close in so as to render the room perfectly dark in the winter and when open gives the bees all the light in summer: Doors on the inside folding against the hives in the summer to prevent any rake of wind to blow away the bees to perish when they attempt to alight, in chilly weather. A stove is planted in the winter which may be heated up as occasion may require to thaw out the frost in the hives, and enable the bees to move at leisure into any part of the hive; the mouth or entrances of the hive are stopped; ventilator covered with a wire screen, and a box 4 or 5 inches deep made water tight and to fit the bottoms of each hive, with a wire screen on the back side an inch or two wide to admit air, is slipped under, and confined in its place as the bottom board is taken off, so that no bee can escape the hive until I am ready to let them out in some warm turn of weather, when I am sure that the atmosphere will admit of their safe return. These boxes receive all the water caused by

the exhalations of the bees, together with other filth which is easily removed in the spring and the bottom boards restored to their places.

I am inclined to think that a bee house made for two tiers of hives on two sides of the hall any desirable length on this plan, will be an improvement.

All feeble swarms of bees, should be wintered in a cellar, or in a temperate place, inasmuch as the animal heat necessary to keep them from perishing by cold depends on the number of their companions in the hive. Some good bee managers recommend uniting all the feeble swarms with stronger ones in the fall as a matter of economy, as it not only saves the lives of the bees, but saves also, considerable honey, for it is a well authenticated fact, that in wintering full colonies of bees, they consume much less honey in proportion to their number than feeble ones. Swarms of bees may be easily united by fumigating both hives with a little tobacco smoke which may be blown into the hives so as to sicken them a little, at the same time the effect of the smoke renders a sameness of smell betwixt the two; so that the bees do not seem to distinguish each other from their own companions when the hive to be expelled is inverted, and the one to receive them is set over it: As soon as the two swarms have united in the upper hive, the lower one may be taken away and the comb preserved in its perfect state for a new swarm the following season.

CHAPTER 12.
OBSERVATIONS FOR SPRING.

Bottom boards and ventilators should be kept closed in the spring until the weather comes off warm to facilitate raising young bees and preventing their being robbed. If there are but few bees in the hive, some of the holes at its entrance may be stopped to enable the bees to guard themselves from their enemies taking care at the same time to clear the bottom board once or twice a week until the hive is well replenished with bees.—Bees should be admitted into the drawers as soon as fruit trees are in blossom.

It is not unusual for some swarms of bees to evacuate their hives in the spring and join with others, without being robbed; the cause usually is want of honey. I have thought more bees are starved in spring than in winter months.

A P P E N D I X.

The Hiver is made of three rough boards, half inch thick, seven inches wide, 24 inches long, nailed together like a common trough, open at both ends—a strap of iron riveted on its outside; across the centre of each board; with a shank or socket to insert a rod to handle it with, so that when inverted by means of the rod, and placed over the bees when alighting, forms a kind of half-hive, which they readily enter.

There should be from a dozen to twenty half-inch holes bored through the top board, so as to let the alighting bees enter through the holes. When a small proportion of the bees are found in the hive, it may be moved a few feet from the limb, which may be shaken with another rod with a hook on its end, which disengages the bees, and in a few moments the whole swarm will be found in the hive. By the addition of ferules and joints, the hive may be raised to any reasonable height. Thus the labor of climbing, the use of ladders, and cutting the limbs of precious fruit trees, is entirely dispensed with. It likewise enables the apiarian in large establishments to divide out and keep separate his swarms, which might otherwise alight many in one body.

Others practice as follows, to wit: Drive down two stakes 3 feet apart, 5 or 6 yards from the bee house, now confine a crossbar to each stake 2 or 3 feet from the ground. A 12 foot board with one end resting on this crossbar, and the other on the ground will usually catch the bees when they swarm on its under side, if there is no fruit trees nor shrubbery at hand, for the bees to alight on; any person will know how to turn over the board and sit an empty hive over the bees. As bees manifest a strong desire to alight so far from the old stock as not to be interrupted by their queen during their organization for a new home, care must be exercised not to place the board too near the old hive.

Some good bee managers have recommended setting down bushes like bean poles with the foilage on the top, around about the apiary, for bees to alight on, which answers an excellent purpose where there are no trees at hand. But there is another method which I have known to succeed in catching swarms even where fruit trees are plenty in the immediate vicinity of the apiary, it is this: Take a quantity of dry mullen heads, and confine both ends of them around the body, or limb of a bush in such a manner as to look like a swarm of bees at a little distance; where several of these are set down, scattered about at short distances from the apiary, the bees will settle on some one of them that is most shaded.—It should be remembered in all cases not to let the sun shine on a bee hive so long as to heat the board.

STATE OF VERMONT, } I SAMUEL SWIFT, Clerk of
 ADDISON COUNTY ss: } the County Court for the ssid
 County of Addison, do hereby certify that John M. Weeks of
 Salisbury in said County has deposited in my office his ori-
 ginal letters patent, under the seal of the United States, sign-
 ed by Andrew Jackson, President of the United States, coun-
 tersigned by John Forsyth, Secretary of State, and dated the
 30th day of June, in the year 1836, granting to the said John
 M. Weeks, his heirs &c. the exclusive right of making, using,
 and vending to others to use a certain improvement in the
 bee hive, for the term of fourteen years, from the said 30th
 day of June 1836; to which is annexed a schedule specifying
 the said improvement.

{ L. S. }

In testimony whereof I have hereunto set my
 hand and affixed the seal of said Court, this 25th
 day of January in the year of our Lord, one
 thousand eight hundred and forty.

SAMUEL SWIFT, Clerk.



